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Signature

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Priority certificate of filing of a patent
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Title: A method of producing or
improving meat products or
meat produce, and the
resulting product

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A b s t r a c t

The invention relates to a method of producing or improving meat produce or meat products, cooked or unheated, e.g. relatively raw.

The invention also relates to a meat product or meat produce produced by the said method (hereinafter denoted by the general term product) more particularly a product for heating only by the end user.

The object of the invention is to disclose production and/or improvement of said products which are specially flavoured and stabilised, by natural means as far as possible, against food-poisoning biological cultures.

To this end according to the invention, as regards the process, the method according to the invention is characterised in that yoghurt, relatively uniformly distributed, is injected into the product. This can be done with a single injection needle or with a multi-needle injector.

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Patent Application

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**A method of producing or improving meat products or
meat produce, and the resulting product**

The invention relates to a method of producing or improving meat produce or meat products, cooked or unheated, e.g. relatively raw.

The invention also relates to a meat product or meat produce produced by the said method (hereinafter denoted by the general term product) more particularly a product for heating only by the end user.

The products of the said kind in question are those wherein the meat is subjected to less processing than for example in the production of sausage or sausage products. The products according to the invention therefore can for example be steaks, which are raw or at most flavoured when delivered to the end user, who will himself prepare the product by heating. The process also applies e.g. to roast meat or cooked or precooked products such as cooked turkey breast. The main concern therefore is with

products wherein the meat is still in substantially its original consistency and in recognisable pieces.

The object of the invention is to disclose production and/or improvement of said products which are specially flavoured and stabilised, by natural means as far as possible, against food-poisoning biological cultures.

To this end according to the invention, as regards the process, the method according to the invention is characterised in that yoghurt, relatively uniformly distributed, is injected into the product. This can be done with a single injection needle or with a multi-needle injector.

The products referred to cannot be mixed with yoghurt, at least not uniformly distributed, since yoghurt is first stirred or mixed in some way when preparing the product, whereas the pieces of meat as stated should if possible still have a meaty consistency. On the other hand according to the invention yoghurt can be injected into the product so that at least, pores and/or gaps in the product are filled with yoghurt and to some extent the product is impregnated with yoghurt.

After injection, as per another feature of the method according to the invention, additional uniform distribution of the yoghurt in the product can be facilitated by mechanically processing the product, e.g. by milling and/or preferably tumbling

in a drum or the like. In that case the product is subjected to further gentle treatment without impairing the consistency or appearance of the finished product.

To sum up, a proportion of 5 to 50% by weight of yoghurt can certainly be introduced into the product by the method according to the invention.

The yoghurt is uniformly distributed in the product without edge regions for example having a higher concentration than the interior of the product, as would be the case if for example the product were simply marinated. Even untreated meat or pieces inserted into meat products can be mixed with yoghurt in this manner, even at a relatively late state in the processing.

Meat from all animals for slaughter is suitable for this method.

Owing to the addition of yoghurt, the product is flavoured in a specially tasty manner and also becomes lighter in calories per unit weight and also more nourishing, particularly more digestible. It is also given greater nutritional value since it is additionally supplemented with valuable proteins and minerals contained in the yoghurt.

Additional mechanical processing can also, more particularly, break down proteins and bond free

water, so that a product such as a steak will be tender and juicy after being heated by the end user.

In particular raw meat products heated only when ready for consumption by the end user can keep for a very limited time if for example they are flavoured and/or marinated. This is inter alia because raw meat has a pH of about 5.8 to 6.0, i.e. is relatively neutral, so that the pH conditions are favourable for growth of undesirable micro-organisms, particularly food poisons.

Another object of the present method therefore is to improve the keeping qualities of these products as far as possible. This can be achieved in particularly advantageous manner with injected yoghurt, since for example yoghurt can be subjected to a relatively long fermentation process, reaching a final pH of about 4.0 or less. If a yoghurt at a pH as low as this is added to the product, the result will be a reduction, corresponding to the proportion of yoghurt, in the total pH of the product, so that a raw meat product can keep for longer as a result without the need for preservatives in the strict sense. In addition, still-active yoghurt can be injected with still-living yoghurt cultures, so that the resulting yoghurt cultures in the product will operate as protective cultures which prevent or at least considerably slow down the propagation of undesired micro-organisms.

The protective effect of still-living cultures is also obtained by using a yoghurt fermented for a shorter time and having a correspondingly higher pH, for flavouring the product only.

For example marinated oven-roasted beef or sweet and sour marinated chops can be mixed with yoghurt at a low pH and thus keep for longer, when the acid taste will not be a disadvantage but will improve the taste of the roast meat. By contrast a turkey steak for example can simply be flavoured with yoghurt which has a somewhat higher pH but provides the product with protective cultures and thus helps it to keep better.

In the case of meat products for cooking in the factory, care must be taken to prevent the total pH becoming too low, since in that case a good deal of moisture will be given off during heating and the finished product will become tasteless and dry. More particularly the product should not fall below the so-called isoelectric point.

The yoghurt supplied to a said product for cooking will therefore have been subjected to a fermentation process only long enough to have the typical yoghurt taste but a relatively high pH, though not in any case appreciably below the pH of 5.8 of the raw meat, in order to avoid an excessive drop in the total pH towards the isoelectric point.

In the method according to the invention, therefore, according to another feature thereof, the yoghurt, adapted to the specific product for which it is determined, is fermented to an individually preset pH. According to another feature of the method, use is made of the possibility of stopping the fermentation of the yoghurt very quickly by shock cooling when the preset pH is reached.

Special protection is claimed for a product prepared by the method described and characterised in that it contains a proportion of injected yoghurt in relatively uniform distribution.

The sequence of operations leading to the process according to the invention will be explained by way of example with reference to the drawing.

The single drawing is a sort of flow diagram for working the method according to the invention.

On one side, the meat is delivered and prepared for suitable loading. The meat is suitably weighed and supplied to an injector.

On the other side the milk is delivered and is fermented to a desired pH to form a yoghurt. When the preset pH is reached, the yoghurt is shock-cooled in order to stop the fermentation process and retain the pH reached. The yoghurt can then be mixed with additional substances such as flavouring

or honey or similar taste-improvers. The yoghurt is then supplied to the injector as before.

The injector injects the yoghurt into the prepared meat for the meat product ready to hand, the yoghurt being preferably in substantially uniform distribution.

The product injected with yoghurt can then be supplied to a tumbler or similar mechanical processing device. Alternatively in theory the product can be poured or packed in its present state and prepared for distribution.

Preferably however the proportion of yoghurt in the product is more uniformly distributed by mechanical processing, and at the same time valuable proteins are broken down and free water is bonded in the product.

Raw product heated only when ready for consumption by the end user, e.g. steaks, roast meat or the like, can immediately be packed and prepared for distribution, or alternatively can be mixed again and/or cut and then packed and prepared for distribution.

Products for cooking, smoking or otherwise pre-heating or heating can be heated as described after the mechanical processing, and can then if required again be cut and packed and prepared for distribution as before.

C L A I M S

1. A method of producing or improving meat products or produce, cooked or unheated, e.g. relatively raw, characterised in that yoghurt, relatively uniformly distributed, is injected into the meat product or the meat produce (denoted by the general term product).
2. A method according to claim 1, characterised in that a multi-needle injector is used for injection.
3. A method according to claim 1 or 2, characterised in that in order to distribute the yoghurt more uniformly in the product, the product is mechanically processed.
4. A method according to claim 3, characterised in that the product is milled and/or tumbled in a drum.
5. A method according to one or more of the preceding claims, characterised in that the proportion of yoghurt added is 5 to 50 wt.% relative to the product.
6. A method according to one or more of the preceding claims, characterised in that the yoghurt, adapted to the specific product for which it is determined, is fermented to an individually preset pH.

7. A method according to claim 6, characterised in that fermentation of the yoghurt is stopped by shock cooling when the predetermined pH is reached.

8. A method according to claim 6 or 7, characterised in that the yoghurt for a product which, depending on its nature is to be cooked for final delivery after adding the yoghurt, or for products which are only for flavouring by yoghurt and not for heating before final delivery, is given a pH of about 4.8 to about 5.2, such that the total pH of the product is about 5.8 to 6.0.

9. A method according to claim 6 or 7, characterised in that the yoghurt for products for stabilising with yoghurt and for heating only by the end user is given a pH of about 4.0 or below.

10. A meat product or meat produce, hereinafter denoted by the general term product, prepared by the method according to one or more of the preceding claims, more particularly a raw product to be heated only by the end user, characterised in that it contains a previously injected proportion of yoghurt in more or less uniform distribution.

Processing of meat products with addition of yoghurt

Delivery Preparation of the meat for loading
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Delivery of milk

Weighing

Fermentation to desired pH

Shock cooling

Injector

Mixing with flavouring substances

Tumbler

Packing/pouring

Mixing

Packing

Cooking/smoking

Cutting

Cutting/packing

Packing

Preparation for distribution
